



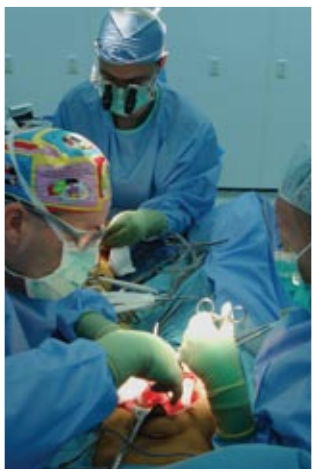
2008 REPORT



UNIFORMED SERVICES UNIVERSITY
of the Health Sciences

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE 2008		2. REPORT TYPE		3. DATES COVERED 00-00-2008 to 00-00-2008	
4. TITLE AND SUBTITLE 2008 Report -Uniformed Services University of the Health Sciences				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Uniformed Services University of the Health Sciences,4301 Jones Bridge Road,Bethesda,MD,20814				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 32	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

2008 REPORT



President's Letter

The Uniformed Services University of the Health Sciences is a center of excellence for military and public health education and research. USU's programs are unique, as are our dedicated faculty, staff and students.

The university benefits tremendously from its extraordinary alumni who return to teach, conduct research and guide others in clinical care. These devoted professionals bring a wealth of experience gained in military treatment facilities throughout the U.S. and around the world, as well as in combat, on ships, in airborne intensive care units, amid natural disaster and among other cultures. This annual report shares the stories of our alumni who are committed to serving our nation and the world by educating the next generation of physicians, scientists and advanced practice nurses.

Since USU's F. Edward Hébert School of Medicine graduated its first class in 1980, the school has awarded Doctor of Medicine degrees to more than 4,200 graduates who serve in the Army, Navy, Air Force and Public Health Service. The school also has awarded nearly 1,100 degrees in the biomedical sciences to individuals who advance the science that underlies our ability to treat and protect against infectious diseases and other maladies affecting humankind.

The USU Graduate School of Nursing has conferred more than 360 master's degrees since its founding in 1993 and six doctorates since opening its Ph.D. program in 2003. These men and women serve in uniformed and federal services at home and abroad. They also work with the school's faculty to conduct research.

Besides our world-class educational programs, USU is dedicated to innovative research in military medicine and nursing as well as public health. Our research programs, devoted to preventive medicine, infectious disease and adaptation to extreme environments, are relevant locally and globally.

Our university educates those who are adept in military medicine and nursing as well as public health, and excels at developing leaders for today and tomorrow. This report tells about our alumni who are now guiding programs that will ensure a strong, healthy future for our servicemen and women.

Finally, and most importantly, it chronicles our mission: to prepare outstanding scientists and health care practitioners for careers in service to our nation. Our mission is like our institution: unique and indispensable.



Charles L. Rice, M.D.



The USU Story

Often referred to as “the West Point of Military Medicine,” the Uniformed Services University of the Health Sciences teaches uniformed officers to care for those in harm’s way. Since opening its doors more than 30 years ago, USU has educated and trained dedicated health care professionals who continue to advance military medicine and public health in the U.S. and around the world.



The need for military doctors was evident years before President Richard Nixon signed a bill in 1972 chartering the nation’s only federal academic health center. The end of World War II, with the subsequent discharge of 10 million men and women, had sent many physicians back to their private practices. Policymakers began discussing the need for a federal medical school, but the debate had little traction.

Renewed focus on the problem began in the 1970s, led by the tireless advocacy of Rep. F. Edward Hébert (D-Louisiana). At the proposed Uniformed Services University of the Health Sciences, scholars

would receive unparalleled medical education, and the nation would benefit from a superb cadre of officers with unique skills.

Dr. Anthony Curreri, a celebrated surgeon and decorated soldier, accepted the challenge and became the charter president of USU in January 1974. From a small office building in downtown Bethesda, Maryland, Dr. Curreri began assembling the university. Selection of students and faculty would be competitive, with only the best chosen. The curriculum would be grounded in educational and scientific rigor, the learning environment would adopt academic principles of collegiality and peer review, and the university would foster a commitment to high standards of medical professionalism.

In 1973, the Board of Regents appointed a site selection committee that chose 100 acres of wooded land on the grounds of the National Naval Medical Center as USU’s permanent home. Situated across the street from the National Institutes of Health, the location allows USU faculty and students singular opportunities to work alongside world-renowned scientists.

Construction on four buildings was completed in 1980. Now, nearly 30 years later, a fifth building has been added for much-needed classroom space and the offices of the Graduate School of Nursing.

In 1980, when the School of Medicine graduated 29 officer-physicians, the precedent was set for USU alumni’s commitment to service. For each succeeding class, the mission remains the same. In May 2008, the School of Medicine awarded Doctor of Medicine degrees to 157 uniformed officers.



In 1993, Congress established a Graduate School of Nursing at USU to ensure a well-prepared cadre of uniformed advanced practice nurses, to further nursing research and to provide graduate education opportunities to military and Public Health Service nurses.

From its inception, USU has benefited from the support of an extraordinarily dedicated and talented staff and faculty. USU’s faculty, both civilian and military, is recruited from all disciplines of medicine, nursing and biomedical sciences. They advance education and research by sharing their knowledge, skills and experience in the classroom, clinic and laboratory. Most importantly, this faculty prepares tomorrow’s leaders of biomedicine to become competent, compassionate and caring uniformed officers.



Dr. Charles Rice is likely the only health sciences university president to hold an alumni reunion in an active combat zone. Rice visited USU graduates in Afghanistan in early 2008.

Featured (from left) are Colonel Bryan Funke (1985), Colonel Gary Walker (1984), Brigadier General Byron Hepburn (1987) and Dr. Rice.

Our Alumni

The university is a unique educational institution because its faculty, students and staff embody a commitment to service. Our alumni make vital contributions to military medical care and cutting-edge research throughout the world. Through our graduates, USU professors see the fruits of their work and students envision their futures as health care practitioners.

This report focuses on USU alumni, especially our alumni faculty, who return to their alma mater to teach, conduct research and provide clinical service. The university's educational and research programs derive unparalleled benefits from its faculty who deploy around the world on humanitarian and research missions and provide care for those in combat and in the wake of disaster. Alumni serve as role models and mentors to our students as they guide future graduates throughout their careers.

Our alumni travel across the globe to care for those in harm's way. USU President Dr. Charles Rice saw their dedication firsthand when he and Air Force Brigadier General Byron Hepburn, M.D., a 1987 USU graduate and command surgeon for the U.S. Air Mobility Command, reunited with alumni in Afghanistan and Germany last December. The pair toured U.S. medical facilities throughout Afghanistan, including an Afghan provincial hospital in Charikar, to discuss local needs and university assistance.

In Bagram, Drs. Hepburn and Rice visited several patients, both U.S. and Afghani, who were treated by USU alumni, including a 3-year-old girl who almost lost her life from injuries suffered during a bomb blast. Four graduates at the Craig Joint Theater Hospital in Bagram—Colonel Gary Arishita (1986), Lieutenant Colonel Randy McCafferty (1993), Major Chetan Kharod (1996) and Lieutenant Colonel Charles Reilly (1997)—performed the lifesaving surgery.

Dr. Arishita, a plastic surgeon serving as director of clinical surgical services at the hospital, reviewed the case and admitted the toddler to the facility. Dr. Kharod, an emergency physician, performed initial trauma resuscitation and promptly diagnosed massive head trauma. The girl also had a large bomb fragment lodged in her brain and severe left eye trauma.

After she was stabilized, the toddler was taken to the operating room, where Dr. McCafferty, a neurosurgeon, worked to control the elevated pressure inside her skull caused by her traumatic injury and Dr. Reilly, an ophthalmologist, repaired her eye. The following day, pressure inside her skull proved difficult to control so Dr. McCafferty

performed a lifesaving bifrontal craniectomy, an extensive procedure to relieve the pressure.

Less than a month after sustaining her life-threatening brain injury, the little girl left the hospital, having regained much of the vision in her left eye and with only mild neurological symptoms.



Lieutenant Colonel Charles Reilly, M.D. (1997) was a member of a medical team, comprised primarily of USU alumni, who performed life-saving surgery on a 3-year-old Afghani girl earlier this year.

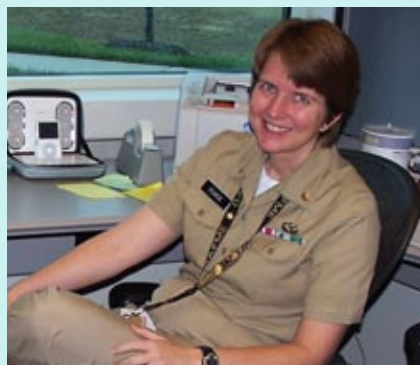
"I am deeply moved by the dedication of our troops and especially proud of the service of USU alumni in-theater," Dr. Rice said. "It is extraordinary to witness the courage and commitment of these men and women as they use the skills and knowledge they have accumulated to care for those in harm's way."

School of Medicine

Since its founding in 1972, USU's F. Edward Hébert School of Medicine has prepared physicians to provide medical care in offices, clinics and hospitals, as well as the most challenging environments. Because a primary mission of military medicine is keeping troops healthy, the school focuses on health promotion and disease prevention. The School of Medicine attracts students from diverse backgrounds who share a common goal: serving the nation by providing the best possible health care.

The school's unparalleled curriculum operates year-round and is nearly 700 hours longer than other medical schools. These extra hours focus on epidemiology, health promotion, disease prevention, tropical medicine, leadership and field exercises, and other subjects that relate to the unique requirements of military medicine. Of the school's physician alumni, more than 75 percent currently serve on active duty in the Army, Navy, Air Force and Public Health Service.

Besides conferring Doctor of Medicine degrees, the school offers doctoral and master's degrees in the biomedical sciences and public health. A large number of these graduates are military officers or serve throughout the federal public health and biomedical research enterprise.



Berry Prize

Commander Lisa Pearse Office of Armed Services Medical Examiner Class of 1991

Commander Lisa Pearse, M.D., a 1991 USU graduate, is the 2008 winner of the prestigious Frank Brown Berry Prize in Federal Healthcare. The prize—named for Frank Brown Berry, a noted thoracic surgeon and assistant secretary of defense during the 1950s—recognizes a federal health professional who has made a significant contribution to medicine.

Dr. Pearse, a chief deputy armed forces medical examiner and chief of the Mortality Surveillance Division, Office of the Armed Forces Medical Examiner in Rockville, Maryland, was selected for her work in developing the Department of Defense Medical Mortality Registry. Multiple government agencies rely on the comprehensive database for information about active duty service member deaths from all causes, including war and infectious disease.

"My USU education equipped me to understand the importance of accurate and reliable data in both preventing and treating disease. Military medicine has unique capabilities to advance human health and values."

White Coat Ceremony

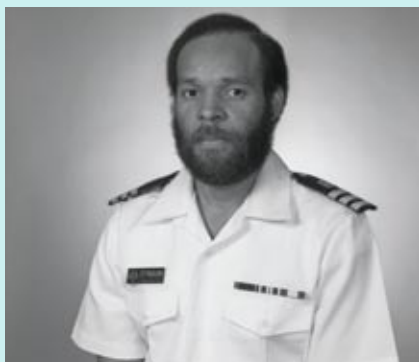
After concluding their initial academic year, medical students received their first white coat during a university ceremony in June. The White Coat Ceremony recognizes humanism and the relationship between a patient and a doctor.

The ceremony, marking the student's transition from the study of preclinical to clinical health sciences, involves a formal "robing" of students in white coats, the traditional attire physicians have worn for more than a century.

"Words cannot describe the pride and joy I felt to be the physician who symbolically inducted my son into the profession of medicine by helping him don the white coat for the first time," said Colonel Steven Swann, M.D., class of 1986. "As an alumnus of this wonderful medical school, USU has very deep meaning for me. Now, 22 years later, it is especially meaningful to have a son follow me to be part of the heritage of USU."



Colonel Steven Swann, a 1986 School of Medicine graduate, helps his son, Second Lieutenant Jacob Swann, class of 2011, don his coat during the university's White Coat Ceremony.



Health Disparities

Nathaniel Stinson, M.D., Ph.D. U.S. Public Health Service Class of 1990

Dr. Nathaniel Stinson is acting director, Office of Scientific Programs, National Center on Minority Health and Health Disparities at the National Institutes of Health. He has direct oversight of the center's community-based participatory research initiative and loan repayment programs.

The center leads the National Institutes of Health's effort to eliminate health disparities. It focuses on expanding the nation's ability to conduct research and to build a diverse research work force.

Dr. Stinson, a USU master of public health graduate, earned both a doctorate in environmental biology and a Doctor of Medicine degree from the University of Colorado.

"The educational environment at the Uniformed Services University of the Health Sciences is unique in the constellation of institutions of higher education. The interaction with uniformed health officials from around the world provided a platform for academic enrichment which provided me with a solid foundation of scientific knowledge and expertise in public health."

Diversity

Like all of the nation's academic health centers, USU works to increase and sustain a diverse student population. The university is starting to see its efforts bear fruit. For instance, the incoming class of 171 School of Medicine students includes 33 minorities. This commitment to diversity, widely shared across the U.S. academic community, has additional resonance within the uniformed services. The military is the most representative organization in the U.S. and celebrated 60 years of integration in 2008.

USU has a distinct advantage in its diversity initiative. Studies confirm the cost of education frequently deters qualified underrepresented minorities from pursuing health care careers. Because students do not incur financial debt, this particular barrier to becoming a physician is removed.

At USU, students are not required to pay tuition and additionally are compensated as active duty officers who serve full time while attending medical school. In return for their fully supported education, graduates must serve actively for at least seven years following internship and residency training; if they serve fewer than 10 years on active duty, they make up the difference in the Ready Reserve.

"Our students have a different debt," said Larry Laughlin, dean of the School of Medicine. "It is a debt of service, and it is one that most take on gladly."



Joint Service Selection Board, a.k.a. Match Day

Much like Match Day at civilian universities, fourth-year students learn where they will spend the next several years as resident-physicians and the specialties they will pursue in announcements handed down by the Joint Service Graduate Medical Education Selection Board.

The "matches" are based on service needs and student preference. Ninety percent of USU's newly minted physicians are matched with their specialty of choice in hospitals across the nation, a rate significantly higher than the national average.



School of Medicine Dean Larry Laughlin visits with students as they prepare for class.

Graduate Programs

The university's close proximity to the National Naval Medical Center, the National Institutes of Health and the National Library of Medicine provides an unparalleled environment for graduate education and research. Given the diversity of research interests of the faculty, doctoral students at USU have an opportunity to engage in cutting-edge research either at the bench or in the field. Because of these unique aspects of the university, USU alumni are prepared for both traditional and non-traditional careers in fundamental and applied aspects of biomedical sciences.

From Clinics to Classrooms

USU develops scientists and health care practitioners who are prepared for wide-ranging careers in service to the nation. The university's



Debbie Weinstein, Ph.D., graduated from USU in 1989 and is now deputy director of the Maryland Pathogen Research Institute.

exceptional graduates lead programs in clinics, laboratories and classrooms around the globe.

For instance, Julie Pavlin, Ph.D., who earned her doctorate in emerging infectious diseases in 2007, is director of the Global Emerging Infections Surveillance and Response System at the Armed Forces Research Institute of Medical Sciences in Thailand. Her classmate, Jared Patch, Ph.D., is a research scientist at Plum Island Animal Disease Center in Orient Point, N.Y., America's first line of defense against foreign animal diseases. Joe Larsen, Ph.D., who received his doctorate in emerging infectious diseases in 2005, became a congressional fellow on Capitol Hill before joining the Defense Advanced Research Projects Agency.

Other alumni have made their mark along more traditional paths. Gerry Andrews, Ph.D., who earned a doctorate in microbiology and immunology in 1993, began his career by completing a postdoctoral fellowship at the U.S. Army Medical Research Institute of Infectious Diseases, where he was promoted to head of the Microbiology Department within a few years. Currently, he is an assistant professor of microbiology at the University of Wyoming in Laramie.

Debbie Weinstein, Ph.D., who graduated from USU's program in microbiology and immunology in 1989, completed a postdoctoral fellowship at the National Institutes of Health, worked in industry and then became executive director of the Society of Leukocyte Biology. Currently, she is deputy director of the Maryland Pathogen Research Institute at the University of Maryland.



Supporting Science

Lieutenant Colonel Jim Sheets Center for Laboratory Animal Medicine Class of 1996

As director of the Center for Laboratory Animal Medicine at USU for the past three years, Lieutenant Colonel Jim Sheets was responsible for managing the university's 50,000-square-foot animal facility, which is accredited by the Association for Assessment and Accreditation of Laboratory Animal Care. The center offers research support to more than 150 scientists conducting \$50 million in Department of Defense (DoD) and extramural research.

Sheets, a veterinarian who earned his master's degree in public health through USU's Laboratory Animal Residency program in 1996, was a member of the Institutional Animal Care and Use Committee, ensuring the care of 24,000 animals housed annually in compliance with federal and DoD regulations and accrediting agency guidelines.

"I have a strong passion for this work and have been extremely proud to be a part of what I consider an outstanding program at USU."

HJF Fellowships

Three promising USU doctoral students were selected by the Henry M. Jackson Foundation for the Advancement of Military Medicine to receive fellowships for the 2007–2008 academic year. Established in 1998, the program provides stipends and travel support for graduate students. This year's fellowship recipients are Christina Faherty, Lara Kingeter and Robyn Osborn-Freed.

Faherty, a fifth-year student in the Emerging Infectious Diseases (EID) program, works in the Department of Microbiology and Immunology laboratory under the supervision of Anthony Maurelli, Ph.D. She is investigating how the intestinal pathogen, *Shigella*, which causes bacterial dysentery, protects the host mammalian cells it invades while simultaneously killing macrophages stimulated to control the infection.



Kingeter is a fifth-year student in the EID program who works in the laboratory of Brian Schaefer, Ph.D., in the Microbiology and Immunology Department. She is focusing on the mechanism of T-cell activation *in vivo*, using imaging to track cell populations.



Osborn-Freed, a fifth-year student in the laboratory of Tracey Sbrocco, Ph.D., in the Medical and Clinical Psychology Department, is examining obesity and behavioral medicine. She is focusing on the impact of eating on stress reduction.



Fever Fighter

Nicole Achee, Ph.D.
**Department of Preventive Medicine
and Biometrics**
Class of 2004

Nicole Achee, Ph.D., is a research assistant professor in USU's Department of Preventive Medicine and Biometrics. Along with collaborators from the U.S. and other countries, she is undertaking an innovative research project to prevent dengue in Thailand and Peru, supported by a \$3.5 million grant from the Bill & Melinda Gates Foundation.

Each year, 50 million to 100 million cases of dengue fever—an acute febrile disease found primarily in the tropics and Africa—occur throughout the world. Spread by *Aedes aegypti*, a mosquito that prefers to feed on humans, dengue fever and dengue hemorrhagic fever are major public health concerns.

Under the new grant, Achee and colleagues plan to develop a system designed to reduce the presence of *Aedes aegypti* inside homes. As part of her graduate work at USU, Achee designed reusable, portable huts for such experiments. A simulated village, comprised of these huts, will be used for studies in Thailand and Peru.

Graduate School of Nursing

The Graduate School of Nursing (GSN) at USU was established in recognition of the key role of advanced practice nurses in the military and other federal services. The school's alumni are leaders in military operational environments, in federal health systems and at universities. The GSN faculty and alumni contribute significantly to the literature of advanced practice nursing and public health science.



Brigadier General William Bester, lower left, and Colonel Bruce Schoneboom served as interim deans of the Graduate School of Nursing before Dr. Ada Sue Hinshaw, top, became dean.

Hinshaw Named Nursing School Dean

Ada Sue Hinshaw, Ph.D., R.N., FAAN, is the new dean of USU's Graduate School of Nursing.

A pathfinder in nursing education and research, Dr. Hinshaw is a member of the Institute of Medicine and a widely published scholar. Before joining USU, she was a professor and dean emerita of the University of Michigan's School of Nursing. She received her doctorate and master's degrees in sociology from the University of Arizona, a master's degree in nursing sciences from Yale University, and a bachelor's degree from the University of Kansas.

Dr. Hinshaw's research interests have focused on quality of care, patient outcomes, measurement of those outcomes and building positive work environments for nurses. She was the first permanent director of the National Center of Nursing Research and first director of the National Institute of Nursing Research at the National Institutes of Health.

"The opportunity to expand graduate programs and research at the Graduate School of Nursing and working with outstanding colleagues at USU make this deanship very exciting," she said. "I am impressed by the accomplishments of the faculty, and I am deeply appreciative of the recent stewardship of the Graduate School of Nursing by Bill Bester and Bruce Schoneboom as acting deans."

Mental Health Program

The university's Graduate School of Nursing established the Psychiatric Mental Health Nurse Practitioner program in 2008 to help meet the mental health needs of our nation's service members.

The curriculum, taught by a faculty with diverse deployment experience, provides education in traditional advanced practice nursing as well as specialized education in behavioral health. Student learning is augmented by participation in clinical and psychiatric rotations at top military treatment facilities around the nation.

This program is extraordinarily valuable because its health care providers will be with units within the U.S. and deployed in theaters of operation where their skills are critical to maintaining the health of the fighting force.



Major Robert Arnold, program director, and Lieutenant Commander Pamela Herbig spent months researching psychiatric mental health nurse practitioner programs at various universities before assisting in the development of a signature curriculum for USU.

Among Nation's Best

Lieutenant Colonel Adrienne Hartgerink Nurse Anesthesia Program Class of 1997

Lieutenant Colonel Adrienne Hartgerink is an example of USU's excellent alumni faculty. A 1997 graduate of USU's nurse anesthesia program, Hartgerink returned to campus in 2004 as an assistant professor in the Graduate School of Nursing, incorporating her clinical and operational expertise into her teaching. Now, she is the nurse anesthesia program director, largely responsible for helping to make USU's program one of the best in the nation.



Graduate School of Nursing Founding Dean Dr. Faye Abdellah and Lieutenant Colonel Adrienne Hartgerink at the ribbon-cutting ceremony for the new Academic Program Center.

In fact, U. S. News and World Report ranked the Graduate School of Nursing's Certified Registered Nurse Anesthesia program sixth of 100 national programs for the second consecutive year.

"This is quite an accomplishment for the nurse anesthesia program that admitted its first students in 1994. To be ranked a second time solidifies the outstanding contributions of both the Graduate School of Nursing and the anesthesia program. It is a direct reflection of the hard work and dedication of the USU faculty and students from all services."



New Home for Faculty and Staff

In June 2008, Graduate School of Nursing faculty and staff moved into a newly constructed Academic Program Center. The ribbon-cutting event held in May marked a historic day as the university celebrated its first major construction project since completion of the original four buildings nearly 30 years ago.

The center provides urgently required classroom space as well as facilities for expanding educational programs and support activities for the Military Health System.

Several other USU offices returned to campus with the center's opening, including the university's offices for Continuing Education for Health Professionals and the Military Training Network. The center also features classrooms, a 100-seat auditorium, distance-learning facility and conference rooms.

Advisory Council

Maryland Governor Martin O'Malley appointed Graduate School of Nursing Associate Professor Gloria Ramsey, J.D., R.N., to the State Advisory Council on Quality Care at the End of Life. She is a faculty member in the Department of Health, Injury and Disease Management.

The council studies the impact of state statutes, regulations and public policies on the provision of care to the dying and monitors trends on such care. It also advises the state's General Assembly, Office of Attorney General, Department of Aging and the Department of Health and Mental Hygiene on matters related to the provision of care at the end of life.

A Unique University

Medical and nursing students at USU are active duty uniformed officers in the Army, Navy, Air Force and Public Health Service. They are being educated not only to be health care providers but also to be prepared for wartime casualties, natural disasters, emerging infectious diseases and other public health emergencies. Many university graduates have been called to support these operations at home and around the world in combat and humanitarian relief efforts, offering both their leadership and expertise.

In addition to a traditional academic health sciences curriculum, USU students are immersed in studies and field exercises directly related to force health protection, tropical diseases, disaster medicine and military and public health medical readiness. Many faculty members have deployment experience and bring these in-theater lessons to the classroom.



Good Medicine in Bad Places

Although many health professions' exams are practicums, a number of USU's final exams are not replicated anywhere else. For example, first- and fourth-year students in Military and Emergency Medicine head to helicopters for a flight to Fort Indiantown Gap, Pennsylvania, for training and testing on simulated battlefields.

Operation Kerkesner, a first-year medical student exercise, and Operation Bushmaster, an exercise for fourth-year medical students, run concurrently at the 19,000-acre military facility. Both serve as final exams for one-of-a-kind courses in the university's Department of Military and Emergency Medicine. Both are designed to closely replicate combat conditions and to test a student's ability to care for

patients in adverse environments and situations. Students are faced with extraordinarily realistic scenarios created by their faculty, many of whom are regularly deployed to care for our troops, our citizens and people around the world. The university's enlisted military personnel provide essential support to the exercises and to the students in helping them learn not only about the military but about leadership as well.

Conflicts in Afghanistan and Iraq, as well as natural disasters within the United States and around the world, have emphasized the lifesaving work of the U.S. military and the Military Health System. USU provides much of the professional and scientific expertise that supports these operations. The education and training gained at Operation Kerkesner and Operation Bushmaster uniquely prepare medical students to "practice good medicine in bad places."





An integral part of Operation Bushmaster involves the triage of multiple or mass casualties, a series of four-hour exercises designed to test medical skill and judgment under combat conditions.



"To say I was impressed would be an understatement. I have observed many field exercises in my career with the military and with the Public Health Service and this was no ordinary field exercise nor can it be simply described. There was not a facet of the training that did not impress and inspire me."

Rear Admiral Robert Williams
U.S. Public Health Service
Acting Deputy Surgeon
General of the United States

"I had a chance to visit Bushmaster training and thought it was the best medical training I had ever witnessed (and I was an Army medical officer for 30 years). When I see realistic training like this, it makes me want to apply to USU as a new medical student."

Rick Erdtmann, M.D., M.P.H.
Director, Board on Military
and Veterans Health (and the
Medical Follow-up Agency)
Institute of Medicine
National Academies of Science



Bushmaster

Lieutenant Colonel Cliff Lutz
Department of Military and
Emergency Medicine
Class of 1993

Lieutenant Colonel Cliff Lutz, M.D., is a natural choice to lead USU's Military and Contingency Medicine (MCM) course and Operation Bushmaster.

The former Special Operations medical officer has significant firsthand experience in planning for missions and caring for troops in extreme conditions and austere environments. Lutz, an assistant professor in the Department of Military and Emergency Medicine, directs Operation Bushmaster, the annual field exercise and MCM final exam for fourth-year medical students.

"Serving as a faculty member at USU is a great opportunity for me to give back to my alma mater and also help train the next cohort of military medical officers. I draw on my own experiences as a student and also my many deployments as a medical officer to prepare these young men and women to care for those in harm's way."

A Unique University

Disaster Response

The university's Center for Disaster and Humanitarian Assistance Medicine (CDHAM) pursues initiatives to mitigate domestic and international disasters. This center of excellence serves as an essential resource for the Department of Defense and other federal agencies, as well as international partners.



Lieutenant Colonel Ben Woods, USU class of 1995, examines a local child while on deployment to Afghanistan.

Created within USU's Department of Military and Emergency Medicine, CDHAM works to improve disaster response and humanitarian aid capabilities. Its multidisciplinary team, including USU alumni, supports a wide range of health-related activities around the world.

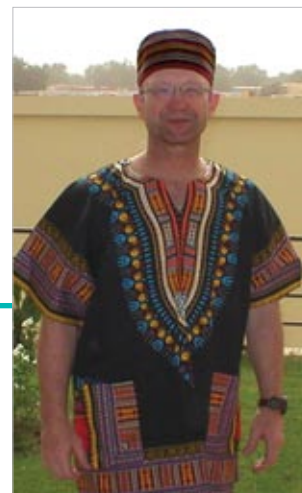
In Chad, unexploded landmines remain hidden throughout the central African terrain, jeopardizing the safety of local populations. Colonel Charles Beadling, M.D., director of CDHAM and class of 1984 USU alumnus, is collaborating

with local government and mine clearance organizations to develop a program that provides quality care to victims of landmines.

In several Caribbean nations, HIV/AIDS has grown to pandemic proportions and the center is responding by working with U.S. Southern Command to develop awareness and prevention campaigns that educate and train local defense forces. Under the leadership of Lieutenant Colonel Ben Woods, M.D., associate director of international programs and a 1995 USU alumnus, a team of USU experts is working with host military and civilian populations to develop sustainable training programs. Besides providing consultation services, the center is producing educational material and supplying military laboratories with much-needed research equipment.

CDHAM has launched the first of three online programs designed to educate medical responders on how to deal with the aftermath of a disaster involving weapons of mass destruction. The training courses, created as part of the USU Online Preparedness Education Program, were developed in collaboration with subject-matter experts and provide CME credits. The result is a free, easy-to-access resource that provides critical information for disaster response worldwide.

Preventing disasters through effective surveillance has gained attention at the center. For instance, CDHAM has partnered with the Global Emerging Infections Surveillance and Response System in an effort to prepare for a possible worldwide influenza outbreak. Dr. John Malone, who earned a master's degree in public health from USU in 2005, leads the program.



"CDHAM augments the education of military medical officers through specialized expertise, consultation and teaching. This prepares them for the roles and responsibilities they will fill during their careers."
Colonel Charles Beadling, M.D.
Director of CDHAM
Class of 1984



"The weapon of mass destruction course is designed for health care providers and others who are responsible for planning for, and responding to, catastrophic events. Although the course has a medical and public health focus, many of our students have law enforcement, emergency management and other non-health-care-related backgrounds. This is important because effective planning and response to such incidents will require the seamless integration of a wide cross section of disciplines in both government and the private sector."
Captain (Ret.) Robert Darling, M.D.
Associate Director of CDHAM
Class of 1985

Center for Deployment Psychology

The Center for Deployment Psychology (CDP) trains military and civilian mental health professionals to provide high-quality, deployment-related behavioral health services to military personnel and their families. The center, headquartered at USU and affiliated with the new Defense Center of Excellence for Psychological Health and Traumatic Brain Injury, works with deployment



David Riggs, Ph.D., is CDP director.

behavioral health psychologists at 10 military medical centers. The consortium was created in 2006 through a joint effort of the Defense Department, American Psychological Association and Congress.

Multiple efforts are under way to increase the number of behavioral health providers in uniform and to augment these providers with civilian mental health professionals. At the core of the center's training effort is an intensive two-week USU course on military medicine, neuropsychology and trauma. CDP has trained more than 150 behavioral health professionals through the program.

The center is developing a series of shorter workshops designed to train professionals in specific skills and techniques, and has trained nearly 500 military and civilian providers.

Helping Families

Stephen Cozza, M.D., USU professor of psychiatry, collaborated with the Sesame Street Muppets to launch "Talk, Listen, Connect: Deployments, Homecomings, Changes," the second phase of the Sesame Workshop's military outreach program begun in 2006. This initiative, aimed at helping families cope with deployment issues, is in partnership with the university's Center for the Study of Traumatic Stress.

Gary Knell, president and chief executive officer of Sesame Workshop, and Brigadier General Loree Sutton, M.D., director of the Defense Center of Excellence for Psychological Health and Traumatic Brain Injury and special assistant to the Assistant Secretary of Defense (Health Affairs), partnered with Cozza to help military families foster stability and resiliency.

With its second phase, the Sesame Workshop aims to reduce children's anxiety during homecomings from multiple deployments, assist parents' ability to cope with multiple deployments and help young children gain an age-appropriate understanding of a parent's injury by including them and the entire family in the rehabilitation process.

"The program provides an opportunity for children to cope with these challenges in positive and reassuring ways," Dr. Cozza said. "These much-needed materials offer wonderful strategies that can help military families with young children and foster meaningful connections among family members, friends and communities in their everyday lives."



(photo by Richard Termine, Sesame Workshop)

Stephen Cozza, M.D., USU professor of psychiatry, consults with his colleague, Elmo, during the "Talk, Listen, Connect: Deployments, Homecomings, Changes" campaign.

A Unique University



Profiles in Courage

Second Lieutenant Gilberto Nieves Second Lieutenant Demara Wright Class of 2011

The very nature of the Uniformed Services University of the Health Sciences inspires tales of bravery and inspiration. Second Lieutenant Gilberto Nieves and Second Lieutenant Demara Wright are two heroes who have turned tragedy into a call for service.

For Nieves, it began in a West Point dormitory on a seemingly normal day for the aspiring infantry soldier. He was pursuing a family tradition by joining the Army, and Nieves was eager to graduate so he could join his brother on the battlefield.

His ambition would be halted with a single phone call. On the line, Nieves' mother broke the devastating news: His brother was hit by a rocket-propelled grenade and killed at the hands of Sunni insurgents.

"It was like someone struck me in the heart, and for a long time everything seemed to move in slow motion," Nieves said.

But he persevered, eventually graduating from West Point and, after visiting the USU campus, deciding to pursue a career in military medicine. After completion of his first year of medical school, his conviction remains steadfast and he is beginning to consider his medical specialty. Nieves is interested in pediatrics—he calls himself a kid at heart—but more importantly, wants to help alleviate any concerns soldiers have about their families.

Outside of school, he brings to life the memory of his brother and other fallen heroes by speaking to veterans groups. "I'm not forgetting what soldiers give up," he said, knowing all too well the meaning of sacrifice.

Nieves is not alone. The journey to USU by Demara Wright also draws inspiration from despair. She too came to understand the direst consequences of war.

Wright was married just weeks when her husband—an Army tank driver—was deployed to Iraq. They made the best of their situation; writing letters, speaking frequently and sending gifts to each other. As the weeks wore on, their correspondence became more sporadic and "I realized he was in a bad place," Wright said.

Even so, nothing could prepare her for the news she would receive in the early morning hours on April 29, 2004. Her husband of two months, Sergeant Adam Estep, died in an attack outside Baghdad while looking for weapons of mass destruction.

A widow at 20, the once light-hearted bride was grief-stricken by the loss of her husband. "I slept, I ate, I studied, I cried," she said, "and that's what I

did for the next year and a half." She graduated with the highest honors from the University of California, Santa Barbara, and decided to pursue a medical degree at USU.

"Coming here was important to me because regardless of what area I go into, I'll be helping people like Adam," she said.



Lieutenant Anton Shufutinsky

A graduate student in USU's environmental health sciences doctoral program, Lieutenant Anton Shufutinsky came to the United States with his family from the former Soviet Union to escape persecution and discrimination. The family of four arrived in Brooklyn, New York, in 1981, with \$100 and two suitcases.

Anton joined the U.S. Navy at age 17, serving as an enlisted cryptologic technician in the intelligence community. He also worked his way through college and supported a family while on active duty. He later earned a Master of Public Health degree, and just prior to coming to USU served on the USS Ronald Reagan, the country's newest nuclear-powered aircraft carrier and "America's flagship."

"My family and I were able to overcome many adversities and come to the United States. I feel fortunate to be able to serve my country."



Major Alaric LeBaron, M.D., spent many months deployed to Afghanistan as part of Operation Enduring Freedom. Dr. LeBaron, an anesthesiologist assigned to David Grant Medical Center, Travis Air Force Base, California, served at the Craig Joint Theater Hospital at Bagram Air Base, Afghanistan. The class of 2000 alumnus worked alongside several USU graduates, providing medical care for U.S. and coalition troops, as well as many Afghan citizens.

Serving Humankind Around the Globe

USU faculty and alumni travel the world to provide life-saving medical care to military and civilian patients alike. From war-torn Iraq to Southeast Asia, USU graduates offer the best in health care and exemplify the university's commitment to preparing medical professionals to care for those in harm's way.

These dedicated health care practitioners bring a wealth of experience gained at the university and military treatment facilities. They have been called upon to support operations at home and around the world in combat and humanitarian relief efforts.



Major Michael Charlton, M.D., and Technical Sergeant Judy Hickman examine the healing progress of an Iraqi policeman at Joint Base, Balad, Iraq. The leg injury resulted from an improvised explosive device attack. Dr. Charlton, a 332nd Expeditionary Medical Operations Squadron orthopedic trauma surgeon and USU class of 1998 alumnus, and Hickman, an orthopedic technician, were both deployed from Lackland Air Force Base, Texas.



Major Sarah-Ann Beal, USU Air Force company commander, helps a patient perform passive range-of-motion exercises at the Air Force Theater Hospital in Balad, Iraq. Beal deployed from USU to Iraq, where she was assigned to the 332nd Expeditionary Medical Support Squadron as an occupational therapist.



Major Nisha Money, a USU preventive health physician and class of 2007 master of public health graduate, examines a young boy at the provincial Friendship Clinic in Kampong Chhnang Province, Cambodia. She was with the 13th Air Force-led medical team in Cambodia in late May for Operation Pacific Angel. The team provided free medical care to Cambodians.

University Life

The university's distinguished faculty and staff include renowned scientists and exceptional clinicians who are dedicated to furthering scientific research and medical practice, while sharing their expertise and experience with students. The university's uniqueness resides in its people—students, faculty, staff, leaders and advisers—who work together to ensure our nation's health by developing tomorrow's leaders in public and military medicine.



The university benefits immeasurably from its dedicated administrative staff. Human Resources Director Darryl Brown (right) and Lab Manager Amal Nadel, from USU's Department of Surgery, collaborate to provide the highest level of personnel services.



USU Pioneer

Andre Dubois, M.D.
Professor
Department of Medicine

Andre Dubois, M.D., is the longest serving faculty member at USU, having joined the F Edward Hébert School of Medicine in 1975, just three years after the university was chartered and one year before the first class matriculated. Dr. Dubois, a professor in the Department of Medicine, also directs the Gastrointestinal and Liver Studies Laboratory.

Throughout the years, he has enjoyed teaching medical and graduate students and guiding gastroenterology fellows through the frustrations and intellectual rewards of bench research. In the past 20 years, his research has focused on *Helicobacter pylori*, the bacterium that causes stomach ulcer and cancer.

"I have always been impressed by the openness and quality of students and by the supportive environment provided by my collaborators and the university staff. Much has changed over the years, but the people have remained of the same highest caliber. They are ready to serve their country, to 'care for those in harm's way' and to advance the boundaries of science."

Leadership Changes

The university made several leadership changes in the past 12 months, including naming its first senior vice president.



As senior vice president, Dale Smith, Ph.D., a USU faculty member since 1982, directs operations of the Office of Recruitment and Diversity, Learning Resource Center and the Center for Multidisciplinary Services. He also leads the Office of Affiliations and International Affairs and the Directorate of Continuing Education for Health Professionals. Previously, he served as professor and chairman of USU's Department of Medical History in the F Edward Hébert School of Medicine.



Teresa Dunn, Ph.D., is the new chair of USU's Department of Biochemistry and Molecular Biology, succeeding Paul Rick, Ph.D.

Dr. Dunn, a member of the biochemistry faculty since 1988, served as interim chair for nearly a year prior to her selection as chair. She has developed an internationally respected research program and served on several important committees and panels at the university and in the scientific community.



Jeffrey Harmon, Ph.D., professor of pharmacology and former director of USU's Molecular and Cell Biology graduate program, was chosen pharmacology department chairman, succeeding Brian Cox, Ph.D., who stepped down after 17 years.



Mary Lou Cutler, Ph.D., a professor of pathology and molecular and cellular biology, became director of USU's Molecular and Cell Biology program. She has been associated with USU's Department of Pathology for more than 12 years.

Public Servant

The Honorable Everett Alvarez Jr. Chair, Board of Regents

Everett Alvarez Jr.'s life is devoted to public service, beginning with a career in the U.S. Navy and continuing with his dedicated and diligent work as chair of USU's Board of Regents.

Shortly after receiving a bachelor's degree in electrical engineering in 1960, Mr. Alvarez joined the Navy. As a pilot serving in Vietnam, he was the first American shot down. He became a prisoner of war in 1964 and was held in North Vietnam for eight and one-half years, until the general release of prisoners in February 1973.



Until his retirement from the Navy in 1980, Mr. Alvarez served in program management at the Naval Air Systems Command in Washington, D.C. In 1981, he was appointed deputy director of the Peace Corps and one year later became deputy administrator of the Veterans Administration, where he remained until May 1986.

He is the author of two books: "Chained Eagle," a historical account

of his experiences during captivity in Vietnam, and "Code of Conduct," the story of rebuilding his life.

Mr. Alvarez joined USU's Board of Regents in 1988 and served as chair from 1992 to 1996. He then was re-appointed as a regent and was re-appointed as chair in 2001.

Mr. Alvarez and his family are a part of the USU family. Besides his years of service to the university, his wife, Tammy, created a not-for-profit organization called The Friends of USU. The group, under Mrs. Alvarez's tireless leadership, formed a partnership with Oscar-winning documentary film producer Terry Sanders, which resulted in a feature-length film about the university, its faculty, students, staff and alumni.

"Fighting for Life" opened in theaters around the nation in spring 2008 to consistently rave reviews.

The Alvarez family also knows the university's education intimately through their son, Bryan, a 2005 School of Medicine graduate. Lieutenant Alvarez has been deployed twice to Iraq as a general medical officer (senior battalion surgeon) and now serves at the Naval Medical Center San Diego in general surgery.

University Life

Military Expertise

The USU Brigade, serving as the university's military leadership element, provides military expertise through its staff and faculty. The brigade offers unique administrative, legal, training and operational support, while contributing to continuity, leadership and military medical readiness. Members of the brigade include officers and enlisted personnel.

Under the leadership of the Brigade commander, Colonel John Wempe, uniformed students, faculty and staff assigned to the university must participate in all activities and events as they would in any other command of the uniformed services. Regular formations are held; physical fitness exercises, standards and testing are completed; performance evaluations are rated; and personnel are trained in the appropriate uniformed programs and customs.



Returning to USU

Captain Mary Porvaznik, M.D. U.S. Public Health Service Class of 1992

Like other USU alumni, Captain Mary Porvaznik, M.D., has returned to her alma mater—where she serves as the U.S. Public Health Service brigade company commander. She is a physician in the university's family health clinic. In addition, she works in the Office of Public Health Service for the Indian Health Service in Rockville, Maryland.

Dr. Porvaznik was born on a Navajo Indian reservation and, after her residency, returned to work with the Navajo for 12 years as a family physician at a 60-bed tribal hospital, where she provided full-spectrum health care.

"As a graduate of USU, I feel very proud to be here. I can see a lot of changes for the better. I would like to see more USPHS officers and students in the School of Medicine."



Country Star McGraw Hosts Students

USU students and staff members spent Father's Day backstage at Nissan Pavilion in Bristow, Virginia, as volunteers for the Tug McGraw Foundation and guests of Grammy-winning country music singer Tim McGraw. Tug, a former Mets and Phillies pitcher and Tim McGraw's father, created the foundation to enhance the quality of life of children and adults with brain tumors by stimulating research that addresses the physical, social, emotional, cognitive and spiritual impact of the disease.



Zerhouni: 'Unique Value'

The Uniformed Services University of the Health Sciences distinguishes itself in various ways, Elias Zerhouni, M.D., director of the National Institutes of Health, told graduates at May's commencement. "I learned firsthand at the university's field exercises the unique value of USU's emergency medicine curriculum. You lead the way in preparation for providing medical care to victims of natural disasters and armed conflicts," he said.

Prominent Roles For Faculty

USU faculty members are active in their disciplines and often take leadership roles in associations and scientific societies. Examples of this leadership abound. For instance, four university professors recently assumed prominent roles within the professional and scientific communities.



Brian Cox, Ph.D., former chair of the Department of Pharmacology and professor of pharmacology and neurosciences at USU, is the new president-elect of the American Society for Pharmacology and Experimental Therapeutics.



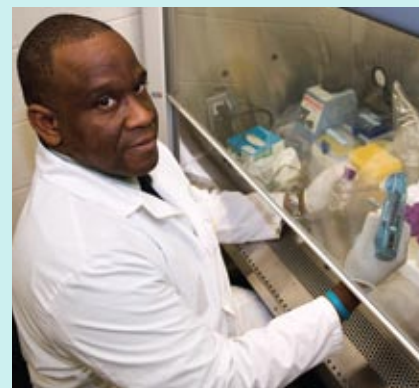
Alison O'Brien, Ph.D., professor and chair of the Department of Microbiology and Immunology, is the new president of the American Society for Microbiology.



Captain (select) Mark Stephens, M.D., an associate professor in the Department of Family Medicine, was elected president of the Uniformed Services Academy of Family Physicians. He succeeds USU Department of Family Medicine Chair Colonel Brian Reamy, M.D., in the post.



Anthony Maurelli, Ph.D., a professor in the USU Department of Microbiology and Immunology, became a fellow of the American Academy of Microbiology in recognition of his "pioneering discoveries in microbiology and evolutionary sciences."



'Small-Town' Atmosphere

Colonel John Farley, M.D. Department of Obstetrics and Gynecology Class of 1990

USU alumnus Colonel John Farley, M.D., is an associate professor and senior medical coordinator/adviser in USU's Department of Obstetrics and Gynecology.

Dr. Farley has dedicated his career to teaching, research and patient care with a focus on eliminating health disparities in the minority community.

"USU gives you a step up on your peers because of the exposure you get to field medicine and infectious diseases. It also develops your capabilities in terms of leading those peers. ... USU is almost more like a small-town medical school. All of your professors are very approachable and accessible. You can talk to them; you can get tutoring. Anything you need to be successful, you can get here very easily."

University Life

Besides offering a demanding course of studies to its students, USU provides a full complement of extracurricular activities, ranging from athletic programs and student clubs to community outreach initiatives and health care facilities. The commitment to camaraderie, service and teamwork pervades every aspect of student life—from academics to extracurricular activities—and exemplifies the special collaborative and supportive nature of USU.



Colonel Brian Reamy, M.D., chair of the Department of Family Medicine, examines Chloe, daughter of Kristen Brown, alumni affairs assistant. "You can almost guarantee that you see 'your' doctor each and every time at the USU clinic," Kristen said. "That says something about continuity."

Comprehensive Care

The University Family Health Center provides comprehensive personal and family-centered care to all enrolled military beneficiaries. The staff offers services that extend across the health care spectrum, including treatment of acute illness, family planning, minor surgery, immunizations, sports medicine and mental health counseling.

Physicians and support staff at the Family Health Center deliver personalized care by tailoring services to meet the needs of patients through this continued interaction. They also foster long-term relationships with students and their families.

Beyond traditional ambulatory care, the clinic hosts education programs and weekly specialty services, including sports medicine and mental health counseling. This allows patients to seek the expertise of a specialist without leaving campus grounds.

Several staff physicians are USU alumni, giving them a unique perspective on how to prepare students for the military's training requirements.



"When I see students in clinic, I am reminded of how challenging the experience was and how I did not need an illness to slow me down or derail me from studying," said Colonel Brian Unwin, M.D., class of 1988.



USU School of Medicine students visited a Rockville, Maryland, classroom to teach elementary school students the importance of a healthy diet and regular exercise. The program, "Get Up, Get Out, Get Fit," is one of several USU student volunteer efforts to reach out to the community.



"Nothing beats getting together with a great group of folks outside of the classroom and seeking out some 'friendly' competition. The softball team gave us all the unique opportunity to display some hidden talents, and at the same time, get the name of USU into the public in another positive way."

**Second Lieutenant Timothy Ori
Class of 2009**

Athletics at USU

Athletic activities enrich the USU experience and offer a welcome break from the rigors of medical education. Participation in programs such as ice hockey, running, soccer, softball and Ultimate Frisbee fosters a pervasive spirit of camaraderie and teamwork. The teams are student-organized and student-run and are approved by USU as private organizations.

Student athletes play at sports complexes throughout Montgomery County, Maryland, where they often compete against local teams and experience a healthy dose of competition. For example, the men's indoor soccer team ended the fall season as undefeated league champions.

"Soccer was a great way to get to know other USU students, especially those not in my class. It is a perfect study break to take your mind off school with practice on Wednesdays, which breaks up the monotony of the week, and games on Saturdays, which get you some sun and exercise amid a weekend usually spent at the library."

**Ensign Allison Griswold
Class of 2011**



Excellence Award

The university's Family Medicine Interest Group is one of 10 programs to receive the American Academy of Family Physicians' Program of Excellence Award.

The award recognizes family medicine interest groups for their efforts to stimulate interest in family medicine and family medicine programming. Honorees exhibit exemplary efforts in community outreach and patient advocacy, family medicine advocacy, infrastructure, and student involvement and retention.



USU volunteers made a difference, one step at a time, by participating in the Avon Walk for Breast Cancer. Staff members raised funds by navigating the arduous course while medical students remedied minor injuries by administering first aid to the sprained ankles, calloused feet and dehydrated bodies that crossed their paths.

Research

The university's research efforts support its educational and clinical care missions. Our School of Medicine and Graduate School of Nursing faculty work closely with students to advance basic biomedical research as well as explore new clinical applications. The result is a greater understanding of the fundamental importance of research to human health.



Gerald Quinman, M.D., left, and Christopher Broder, Ph.D., are developing vaccines to fight devastating viruses.

Vaccine Grants

Vaccines are among the most important advances in modern medicine. They have eliminated smallpox and nearly eradicated polio. USU scientists are making their own mark on vaccine research by seeking advancements in the fight against devastating viruses.

Gerald Quinman, M.D., a retired Public Health Service captain and professor and interim chair of USU's Department of Preventive Medicine and Biometrics, was one of 10 scientists awarded a grant from the National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health. The \$15.6 million, five-year program will strengthen and expand the scientific foundation of HIV vaccine research through a network of 10 research teams nationwide that will share resources, methods and data to accelerate progress.

The grant will advance under-developed approaches to designing a preventive HIV vaccine. NIAID is launching a new program to foster the study of B cells, immune cells that can produce antibodies with the capacity to neutralize HIV. In the immune system, B cells recognize key parts of microbes, called antigens. Then, in cooperation with T cells—parts of the immune system that kill cells infected by pathogens—a reaction is triggered that leads B cells to produce antibodies. The antibodies then lock onto antigens and remove them from the body. HIV excels at deceiving B cells and shielding itself from antibodies or changing its antigenic parts, so antibodies can rarely rid the body of the virus.

The new program aims to uncover mechanisms that will enable scientists to outwit HIV and stimulate the B-cell production of long-lasting antibodies that can neutralize many strains of the virus.

University researchers, under the leadership of Christopher Broder, Ph.D., also won a \$5.6 million grant from NIAID to develop and test vaccines and treatments for the Nipah and Hendra viruses. The award will support a continued collaboration between investigators in Australia and a USU research team led by Dr. Broder, a professor in the Department of Microbiology and Immunology.

The newly emerged Hendra and Nipah viruses can lead to lethal infections in humans and several animals. The majority of outbreaks have occurred in Bangladesh and India, with human fatality rates approaching 75 percent. Studies have demonstrated that the natural reservoirs for Hendra and Nipah viruses are bats, primarily several different species of large fruit bats commonly referred to as flying foxes.

USU scientists have developed a vaccine for Nipah and Hendra found to be very effective in preventing Nipah virus disease and a highly potent Nipah and Hendra virus-neutralizing antibody as a potential therapeutic for both viruses.

Research Week

The university's annual Research Week promoted research by faculty, staff and students and provided opportunities for interdisciplinary collaboration and communication among USU graduate students and faculty.

Wide-ranging symposia discussed traumatic brain injury, technological advances and research, and education research. John Gallin, M.D., director of the National Institutes of Health's Clinical Center, delivered a keynote address on translating basic research into clinical practice.

This year's event, "Celebrating Excellence in Research," reflected the complementary roles that nursing, public health, behavioral science, basic science and medicine play in health promotion and disease prevention. Poster presentations, distinguished guest speakers and panels demonstrated USU's special role in civilian, public health and military research initiatives across the health sciences.



The Research Week poster session drew interest from researchers and military health care providers alike.



Commander Jack Tsao, M.D., watches as Sergeant Nicholas Papoure uses mirror therapy, which allows Papoure to visualize flexing his missing limb to help alleviate pain.

Mirror Therapy

Phantom limb pain plagues as many as half of all amputees. Such pain is believed to be the result of a faulty signal between the brain and the missing appendage. Commander Jack Tsao, M.D., associate professor of neurology, is employing a novel therapy to alleviate the condition: a mirror.

Dr. Tsao began his work by revisiting literature he had first seen in graduate school. Vilayanur Ramachandran, a neuroscientist at the University of California—San Diego, devised mirror therapy to treat phantom limb pain in upper extremities. Ramachandran used mirrors so amputees could “see” and “move” their missing limbs to relieve the discomfort.

Tsao, who treats military amputees wounded in Iraq and Afghanistan at the Walter Reed Army Medical Center, decided to test the mirror premise. He set up a clinical trial and recruited 18 combat-wounded amputees suffering from phantom limb pain.

“The mirror works for most people who have tried it,” Tsao said. “It doesn’t work fully for everyone. Some people are left with some residual pain, but it is better than when they started.”

Tsao now will test mirror therapy for treating phantom pain in missing arms and will conduct a second trial, called functional magnetic resonance imaging, to discover precisely why mirror therapy works.

Research

AFRRI Collaboration

The Armed Forces Radiobiology Research Institute (AFRRI), a USU component, collaborates with other government facilities, academic institutions and civilian laboratories in the United States and worldwide to exchange information and conduct research. In addition, the facility provides medical training and emergency response to manage radiation exposure incidents.

AFRRI's research is dedicated to exploring the effects of ionizing radiation and developing the best means of assessing and treating military and civilian casualties in the event of a nuclear or radiological attack or accident.

Approximately 90 researchers from Canada, France, Germany, Sweden, the Netherlands, the United Kingdom and the U.S. gathered for an AFRRI workshop in May that focused on assessing and treating casualties caused by partial-body radiation.

In AFRRI labs, researchers are examining such approaches as cytogenetic and molecular biomarkers applicable to partial-body exposure. Another approach, proteomics, examines the potential of radiation-responsive proteins as biodosimeters to gauge levels of acute and chronic exposure to ionizing radiation.



Full Circle

Christopher Lissner, Ph.D.
Deputy Scientific Director
of AFRRI
Class of 1984

Christopher Lissner, Ph.D., has come full circle, returning to the university where he earned his doctorate in 1984. As deputy scientific director of USU's Armed Forces Radiobiology Research Institute (AFRRI), Dr. Lissner focuses on understanding, measuring and ameliorating the effects of ionizing radiation on people and biological systems.

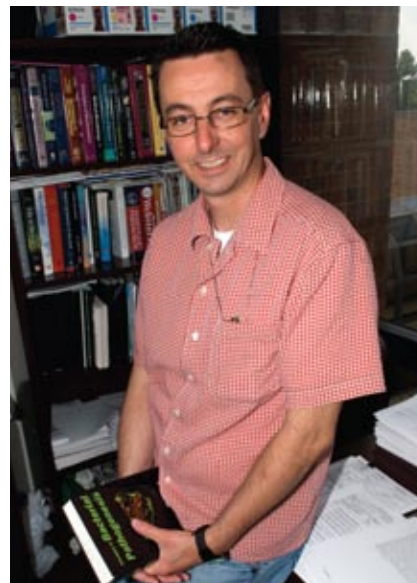
The institute's work extends from basic and applied research to advanced development. His work also includes educating the next generation of radiation biologists.

"I'm particularly proud of my role as a clinical and medical microbiologist assisting with diagnoses that have helped reduce human suffering and saved lives. I value opportunities to teach and to learn from physicians, researchers and lab technicians, as well as to apply skills to bring people and leaders together and to share equally in improving an institution and its mission."

Sigal Award

D. Scott Merrell, Ph.D., assistant professor in the Department of Microbiology and Immunology, received the 2008 Merck Irving S. Sigal Memorial Award from the American Society for Microbiology. Dr. Sigal was a pioneer in discovering therapies to treat HIV/AIDS. The award recognizes excellence in basic research in medical microbiology and infectious diseases.

Dr. Merrell identified an important regulatory protein known as "Fur," which he has characterized in his laboratory. Since joining USU in 2004, he has established a research program funded by the National Institutes of Health and developed several local and international collaborations to study "Fur-dependent" gene regulation.





Grandfather's Footsteps

Colonel Naomi Aronson, M.D.
Department of Medicine
Class of 1981

A career in health care comes naturally to Colonel Naomi Aronson, M.D., who is following in the footsteps of her grandfather, an Army medic during World War I and World War II, and her uncle, a Public Health Service officer at the National Institutes of Health.

After completing her undergraduate degree, Dr. Aronson decided to study tropical medicine at USU, receiving a doctor of medicine degree in 1981. She has returned to the university as a professor and senior researcher in the USU Emerging Infectious Diseases graduate program.

"I'm now doing work with tuberculosis. In the 1930s, my grandfather did a vaccine efficacy study for TB and now my work is actually following up on his original study. ... The military and USU gave me the opportunity to do something that was important to me and to public health."

USU-HJF Symposium

A first-ever symposium, held in June and sponsored by USU and the Henry M. Jackson Foundation for the Advancement of Military Medicine, drew leading military and civilian researchers and clinicians who discussed recent advances within the Military Health System.

The one-day symposium featured presentations on trauma and combat casualty care, posttraumatic stress and traumatic brain injury, infectious diseases research and response, and advancements in cancer research. The meeting also offered a unique opportunity to discuss novel ways to better integrate the federal and civilian sectors to improve the nation's health.

From Concept to Clinic

An active technology transfer program is essential to translating scientific discovery to improved patient care. The USU-HJF Joint Office of Technology Transfer—a partnership between the university and the Henry M. Jackson Foundation for the Advancement of Military Medicine—works to advance inventions by university and Foundation researchers.

The office has worked with USU faculty to develop partnerships with a variety of industries to bring research results to clinical application. This work has resulted in advances in human nutrition, diagnosis and treatment of infectious diseases, development of immunoprotectants, and improved care for cancer patients.

Collaborative Research

USU's Infectious Diseases Clinical Research Program (IDCRP) is a collaborative research effort with the National Institute of Allergy and Infectious Diseases. Established at the university in 2005, this unique program aims to strengthen infectious disease clinical research in the U.S. It brings together a network of clinical scientists at military treatment facilities who focus on conducting patient-based research on a wide range of infectious diseases relevant to the military and the broader medical community.

This cooperative relationship utilizes the Defense Department's extensive health care and research infrastructure. Research centers on clinically important infectious disease threats to the military community, including methicillin-resistant staphylococcus aureus and other multiple-drug-resistant organisms. IDCRP scientists also are addressing infectious complications of war wounds, travel and tropical diseases, and HIV and its related conditions.



With the sponsorship of Assistant Secretary of Defense for Health Affairs S. Ward Casscells, M.D., far right, USU coordinated the first-ever Graduate Medical Education Research Poster Session at the 2008 Military Health System Conference.

The Future

Construction has begun on a new national military medical center adjacent to the university, which promises to leverage USU's educational and research efforts in dynamic new ways. The tri-care facility will become the flagship of military medicine and a new model for an academic health center of the 21st century.

The July groundbreaking for the Walter Reed National Military Medical Center (WRNMMC), to open in 2011, ushers in a new era for

military medicine. It will house an integrated, advanced medical facility that will join all three services on the National Naval Medical Center (NNMC) grounds adjacent to the National Institutes of Health. The \$970 million project will create one major military hospital in the Washington area, a 2.5-million-square-foot, 345-bed facility that will merge the existing Walter Reed Army Medical Center (WRAMC) with the NNMC. USU will serve as the health sciences education core of this new hospital.

USU plays a key role in two additional important initiatives: the Center for Neuroscience and Regenerative Medicine and the National Intrepid Center of Excellence for Psychological Health and Traumatic Brain Injury.

Traumatic brain injury (TBI) and posttraumatic stress disorder (PTSD) are signature injuries of Operation Iraqi Freedom and Operation Enduring Freedom. Current understanding of the pathophysiology of these injuries does not provide military medicine with adequate therapeutics to address them. One overarching knowledge gap is the need for epidemiological data to help define those affected by mild brain injury.

New diagnostic tools are critical to a better understanding of mild brain injury, which often goes undetected because few or very subtle changes are difficult to discern during routine exams. Therefore, the immediate challenge is to develop more accurate and precise diagnostic tools, novel approaches to increase neuroplasticity,





Secretary of Defense Robert Gates addresses the audience during the ground-breaking ceremony for the new Intrepid Center of Excellence at the National Naval Medical Center in Bethesda, Maryland.

and when appropriate, the use of regenerative medicine to address brain injury at the organ, cellular and molecular level.

To this end, the Defense Department's fiscal 2008 supplemental bill provided \$70 million to USU to establish a Center for Neuroscience and Regenerative Medicine for the study of blast injury to the brain and PTSD by studying the combat casualties cared for at WRAMC and NNMCC. Because of the sophisticated neuroimaging technology at NIH's Clinical Center, Congress encouraged a collaboration with NIH and this work is well under way.

The center will focus on several areas:

- Neuroregenerative medicine to restore neurological function. A USU-based team of researchers will develop tools that manipulate adult neural stem cells in situ to restore function associated with damaged areas of the brain.
- Improved neuroimaging to diagnose TBI and PTSD. Application

of cutting-edge imaging technologies, in combination with clinical assessments and improvements in identifying biomarkers, should significantly improve the diagnosis and development of treatments for returning service members.

- Neuroplasticity as a tool to improve TBI therapeutic outcomes. The goal is to further define how current knowledge in neuroplasticity can be used to design clinical trials that address recovery.
- Rehabilitation medicine for TBI and PTSD. This represents a rare opportunity for patients to gain advanced imaging results integrated with genomic and proteomic biomarkers and assessment approaches to facilitate rehabilitation and recovery from functional deficits.

The second initiative is an effort to crystallize knowledge about health issues related principally to PTSD and TBI. The Department of Defense, with support from the Department of Veterans Affairs, will create the National Intrepid Center of Excellence (NICoE). The 72,000-square-foot facility, located inside the gates of NNMCC, will share the campus with the university and WRNMCC.

Speaking at the groundbreaking for the center in June, Defense Secretary Robert Gates said, "This superb new center will be a living reminder that America honors the contract [to provide care] and keeps faith with those who have sacrificed so much for all of us."

The NICoE for Psychological Health and Traumatic Brain Injury will provide advanced diagnostics, initial treatment and family education for soldiers with PTSD or TBI, and will integrate the educational and

training functions of USU's Center for Deployment Psychology. The goal is to offer lifelong, standardized and comprehensive screening, diagnosis and care for TBI and PTSD.

The facility also will serve as the clinical research and educational arm of the Defense Department's Center of Excellence for psychological health and TBI, a collaborative network of military, public and private health care and educational organizations, including USU. The network seeks to discover and promote best practices in the treatment of TBI and psychological health.

The NICoE project is being funded by the Intrepid Fallen Heroes Fund, which provides assistance to critically injured service members and their families.

USU President Charles Rice has described both efforts as key initiatives to strengthen the relationships between research and clinical care, between the university and WRNMCC, and between this new academic health center and the National Institutes of Health.



Colonel Michael Roy, a 1993 graduate of USU's Master's of Public Health program, uses virtual reality therapy as a novel approach to treat posttraumatic stress.

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This publication was produced by the Henry M. Jackson Foundation for the Advancement of Military Medicine.



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